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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/844,670 | 04/30/2001 | Radhika Thekkath | MTEC011/00US | 8985 |

22903 7590 06/16/2004

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EXAMINER

GROSS, KENNETH A

ART UNIT PAPER NUMBER

2122

10

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,670

Applicant(s)

THEKKATH ET AL.

Examiner

Kenneth A Gross

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date Z
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This action is in response to the amendment filed on April 6th, 2004.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1, 2, 7-15, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Swaine et al. (U.S. Publication Number 2002/0147965).

In regard to Claim 1, Miura teaches a trace data bus configured to transfer trace data in a trace data transfer order (Column 4, lines 56-62) and a trace data order determination element configured to generate a trace data order signal (Column 8, lines 20-33). Although, Miura teaches that the trace data order is the same as the order of execution of the instructions (Column 4, lines 50-55), Miura does not teach that the trace data transfer order is different from an instruction order wherein said trace data order signal specifies a transfer order relative to previously executed instructions having outstanding trace data. Swaine however, does teach a trace data stream with an order that is different than an instruction order (Paragraph [0013]) and marking trace data for an outstanding instruction so that the trace data temporarily does not include outstanding trace data until it is available (Paragraph [0049]). The placeholder taught by Swaine is not trace data, and so the order of the trace data is out of order when outstanding trace

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data arrives late. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to build a system including a trace data bus configured to transfer trace data in a trace data transfer order and a trace data order determination element configured to generate a trace data order signal, where the trace data order is execution order, as taught by Miura, where the execution order of instructions is different from a predetermined instruction order wherein said trace data order signal specifies a transfer order relative to previously executed instructions having outstanding trace data, as taught by Swaine, since this allows outstanding trace data to be accounted for later in the execution.

In regard to Claim 7, Claim 7 is a product claim that corresponds with Claim 1, and is rejected for the same reasons as Claim 1, where Miura teaches a product for use in the system of Claim 1 (Figure 3).

In regard to Claims 8 and 11, Claims 8 and 11 are method Claims that corresponds with Claim 1, and are rejected for the same reasons as Claim 1, where it would be obvious to embed computer code for carrying out the function of the computer system taught in Claim 1, since program code is the way in which a system carries out a function, and where it would be further obvious to transmit this program code to the computer system, since the system will need to receive this code in order to use it on the computer system.

In regard to Claim 10, Claim 10 is a data signal claim that corresponds directly with Claim 8, and is rejected for the same reasons as Claim 8, where it would be obvious to embody a data signal on a transmission medium, since when transferring data between

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computers, the information must comprise a electrical data signal in order for the computer to understand the information sent.

In regard to Claim 20, Miura teaches tracing a plurality of instructions having an instruction order (Column 4, lines 50-55) and transferring trace data when it become available (Column 8, lines 9-11) for a plurality of instructions in a certain order (Column 8, lines 20-26 and Column 4, lines 53-55). Although, Miura teaches that the trace data order is the same as the order of execution of the instructions (Column 4, lines 50-55), Miura does not teach that this order is different from a program sequence of a plurality of instructions, nor does he teach transmitting a signal along with said transferred trace data that identifies a number of instructions that have trace data outstanding order wherein said trace data order signal specifies a transfer order relative to previously executed instructions having outstanding trace data. Swaine however, does teach a trace data stream with an order than is different than an instruction order (Paragraph [0013]) and marking trace data for an outstanding instruction so that the trace data temporarily does not include outstanding trace data until it is available (Paragraph [0049]). The placeholder taught by Swaine is not trace data, and so the order or the trace data is out of order when outstanding trace data arrives late. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of tracing a plurality of instructions having an instruction order and transferring trace data when it become available for a plurality of instructions in a certain order, as taught by Miura, where this order is different from a program sequence of a plurality of instructions and transmitting a signal along with said transferred trace data that identifies a number of instructions that have trace data outstanding order wherein said trace data order signal

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specifies a transfer order relative to previously executed instructions having outstanding trace data, as taught by Swaine, since this allows outstanding trace data to be accounted for later in the execution.

In regard to Claims 2, 9, 12-15, and 21-23, for specific rejections of the limitations of these Claims, see the office action mailed on December 3rd, 2003.

4. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Swaine et al. (U.S. Publication Number 2002/0147965) and further in view of Hicks et al. (U.S. Patent Number 5,150,470).

In regard to Claim 3, Miura and Swaine teach the system of Claim 1, but do not teach that the trace data order signal identifies a number of instructions that have outstanding trace data. Hicks, however, does teach making an indication of instructions that have outstanding data (Column 5, lines 14-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to build the system of Claim 1, as taught by Miura and Swaine, where the trace data order signal identifies a number of instructions that have trace data outstanding, as taught by Hicks, since this indicates data that needs to be handled before other data can be processed.

Claim 16 contains limitations that have already been addressed in the rejection of Claim 3 and is rejected for the same reasons as Claim 3.

5. Claims 4-6 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (U.S. Patent Number 5,625,785) in view of Swaine et al. (U.S. Publication Number 2002/0147965) and further in view of Levine et al. (U.S. Patent Number 5,878,208).

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In regard to Claim 5, Miura teaches transmitting the address of a traced instruction prior to transmitting the traced data of the instruction (Column 7, lines 45-53).

In regard to Claims 4 and 6, for specific rejections of the limitations of these Claims, see the office action mailed on December 3rd, 2003.

Claim 17-19 contain limitations that have already been addressed in the rejection of Claims 4-6 and are rejected for the same reasons as Claims 4-6.

Response to Arguments

6. Applicant's arguments filed April 9th, 2004 have been fully considered but they are not persuasive.

Specifically, with regard to the arguments regarding the Miyake reference (Page 9, Paragraph 2), this reference has been removed from all rejections, and these arguments are therefore moot.

The applicant further argues that Swaine does not have a data order signal that specifies a transfer order relative to instructions having outstanding trace data. Rather, Swaine teaches the transmission of a data place holder that must be placed in the trace data stream at exactly the point corresponding to an instruction that generates a miss ((Page 9, Paragraph 3). However, Swaine does teach does teach a trace data stream with an specified order (Paragraph [0013]) and marking trace data for an outstanding instruction so that the trace data temporarily does not include outstanding trace data until it is available (Paragraph [0049]). The placeholder taught by Swaine is not trace data, and so the order or the trace data is out of order before the outstanding trace data arrives late. The order skips over the data that arrives late.

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Finally, Swaine does teach a trace data order determination element with this trace data order signal (Page 29, Column 1, lines 10-13) as argued by the applicant on Page 9, Paragraph 4).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Gross whose telephone number is (703) 305-0542. The examiner can normally be reached on Mon-Fri 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KAG



TUAN DAM
SUPERVISORY PATENT EXAMINER